

Family Menidae

Body greatly compressed, oval, with low arched dorsal and deep bulging forward ventral profile forming conspicuous trenchant abdomen. Head small, compressed, deep. Snout rather long. Eye median in head length, rather small. Mouth nearly vertical, terminally superior. Teeth in bands in jaws. Maxillary not reaching under eye. Opercle and preopercle entire. Gill opening wide, membranes free. Branchiostegals 7. Air bladder large, bifurcate posteriorly. Pyloric coeca 25 to 30. Vertebral 23, of which 14 caudal. Scales minute, microscopic, only evident to touch. Lateral line slightly

arched, sometimes continued to caudal. Single long dorsal, young with 9 spines in front disappearing with age, front simple rays little elevated. In young anal with 2 spines and normal rays, later without spines, numerous rays become covered with membrane, wide free ends forming broad flat extensions. Caudal deeply forked. Pectoral moderate. Ventral begins little before pectoral, filiform in young, first ray compressed and very long with age.

One genus. Singular fishes of odd form and rather brilliantly colored, of the Indian Ocean and western Pacific.

Genus Mene Lacépède

Mene Lacépède, Hist. nat. Poiss.,
vol. 5, pp. 479, 480, 1803. (Type
Mene anna-carolina Lacépède =
Zeus maculatus Schneider,
monotypic.)

uniform white. Upper caudal lobe with 3 to 5 slightly darker gray bands, slightly inclined from upper edge and fading out below. Entire hind caudal edge with submarginal dusky band. Barbels whitish.

Arabia, Portuguese East Africa, India, Philippines, Indo China, China, Formosa, Riu Kiu, Japan. Snyder has given the dorsal spines as seven though I find they may vary one or two more or less. He also gives the scales as 36 in his "key to the species" but in the description "scales in lateral series 30". His figure shows 28 tubular to caudal base and 2 more on lateral line.

Body, deep, irregularly ovoid, with conspicuous, trenchant abdomen. Head with upper profile little inclined, lower steep or nearly vertical. Snout obtuse. Eye but little elevated in head, without adipose lids. Mouth small, greatly protractile. Maxillary extends well below level of eye, smooth, sigmoid. Teeth in villiform bands in jaws, none on palate. Occipital crest high. Gill membranes separate, free from isthmus. Lateral line sometimes ends below end of dorsal, or divides with lower branch reaching upper caudal lobe. Single long dorsal begins on back and nearly reaches caudal. Anal with longer base, short expanded rays enclosed

in membrane, rays very short
and ends greatly expanded.
Caudal small. Caudal peduncle
compressed, without keel.
Pectoral inserted nearly midway
in body depth, well below
level of eye. Ventral with
spine and 5 rays.

One species.

Mene maculata (Schneider)

Genus maculatus Schneider,
Syst. Ichth., p. 95, pl. 22, 1801
(type locality, Tranquebar).

Mene maculata Valenciennes, Hist.
Nat. Poiss., vol. 10, p. 104, pl. 285,
1835 (Pondicherry; Java).
Swainson, Hist. Nat. Poiss., vol. 3, p. 251, fig. 79, 1839 (copied).
Schlegel, Fauna Japonica, Poiss.,
pts. 7-9, p. 127, pl. 67, fig. 3, 1845
(Japan). — Richardson, Ichth. China
and Japan, p. 276, 1846 (China;
Japan). — Cantor, Journ. Asiatic
Soc. Bengal, vol. 18, pt. 2, p. 1137,
1849 (1850) (Pinang Sea). —
Jerdon, Madras Journ. Lit. Sci.,
p. 138, 1851.

1285

latter; 2 or 3 above, 6 or 7 below,
12 or 13 predorsal forward nearly to
snout tip; 3 rows on cheeks below
eye. Tubercles in lateral line with 2 to
4 tubercles. Scales with 3 to 6 basal
radiating striae; 70 to 124 apical
denticles, with 10 to 13 transverse series
of basal elements; circuli fine.

D. VII (varies V or VIII) — I, 8, I,
first spine $1\frac{2}{5}$ to $1\frac{3}{5}$ in head, first
branched ray $1\frac{2}{3}$ to 2; A. I, 6, I,
first branched ray $1\frac{4}{5}$ to $1\frac{7}{8}$; caudal
1 to $1\frac{1}{8}$, deeply forked, with sharp
pointed lobes; least depth of caudal
peduncle $2\frac{7}{8}$ to 3; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$;
ventral $1\frac{1}{5}$ to $1\frac{1}{3}$.

Brown on back and upper surface
of head, lower half of body white,
with silvery reflections. Iris gray to
yellowish white. Fins dull or pale

— Playfair, Fishes of Zanzibar, p. 66, 1866 (Aden; Zanzibar).

— Day, Fishes of India, pt. 2, p. 249, pl. 153, fig. 5, 1876.

— Karoli, Termesz. Füzetek, Budapest, vol. 5, p. 162, 1881 (Palaboen, Java).

— Gorgōza, Anal. Soc. Españ. Hist. Nat. Madrid, vol. 17, p. 292, 1888

(Manila Bay; Cebu). — Day, Fauna British India, Fishes, vol. 2, p. 201, fig. 70, 1889.

— Sauvage, Hist. Nat. Madagascar, Poiss., p. 518, 1891 (reference).

103

Body oblong, compressed. Head large. Eye large, usually greater than snout. Mouth wide, oblique. Maxillary reaches below middle of eye. Villiform teeth only, in bands in jaws, on vomer and palatines. Preopercle ridge double, edge somewhat serrate, at least in young, sometimes entire with age. Opercle with spine posteriorly. Gill rakers rather long. Vertebral 25, of which 14 caudal. Scales large, ctenoid, ^{ocyploid} Top of head, interorbital and snout naked. Lateral line usually complete, scales 20 to 40. Dorsal spines 6 or 7, strong. Second dorsal short, remote, rays 8 to 10. Anal spines 2, rays 8 or 9, similar and opposite to soft dorsal. Pectoral and ventral moderate.

We retain in this large group those species in which the caudal is at least

Mene maculata Bleeker, Verh.
 Batavia. Genoot. (Makreel.), vol.
 24, p. 86, 1852 (Batavia; Tjiringan;
 Samarang); (hal. Ichth. Japan,
 vol. 25, p. 15, 1853 (reference);
 (hal. Ichth. Bengal, vol. 25, p. 46,
 1853 (reference); hat. Tijds. ned.
 Indie, vol. 6, p. 457, 1854 (Amboina),
 p. 517 (Delakan); vol. 7, p. 313,
 1854 (Tjiringin); Act. Soc. Sci.
 Ind. Neerl., vol. 3, no. 3, p. 6,
 1857-58 (Japan); hat. Tijds.
 ned. Indie, vol. 16, p. 408, 1858
 (Japara, Java); Verslag. Akad.
 Wet. Amsterdam, vol. 12, p. 32,
 1861 (Singapore); ser. 2, vol. 2,
 p. 276, 1868 (Batjan).

— Günther, Cat. Fish. Brit. Mus., vol.
 2, p. 415, 1860 (Malay Peninsula). —
 { Bleeker,

depth $4\frac{1}{3}$ to $4\frac{3}{4}$; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width 2 to $2\frac{1}{3}$. Snout $2\frac{2}{5}$ to $2\frac{3}{4}$ in head; eye $3\frac{1}{3}$ to $4\frac{1}{3}$, $1\frac{1}{4}$ to $1\frac{4}{5}$ in snout, greater than interorbital in young to $1\frac{1}{5}$ with age; maxillary reaches $\frac{1}{4}$ in eye in young or to front eye edge with age, expansion $1\frac{2}{3}$ to $1\frac{3}{4}$ in eye, length $2\frac{1}{2}$ to $2\frac{3}{5}$ in head; barbels reach opposite hind preopercle edge or $1\frac{2}{5}$ in head; teeth in villiform bands in jaws, on vomer and palatines; interorbital $3\frac{1}{4}$ to $3\frac{3}{4}$, very slightly elevated and nearly level. Gill rakers 8 + 17, lanceolate, $1\frac{1}{2}$ in gill filaments, which $1\frac{1}{4}$ in eye; 3 or 4 above and 4 below rudimentary tubercles.

Scales 28 or 29 in lateral line to caudal base and 2 or 3 more on

— Jordan and Snyder, Annot. Zool.
Japan, vol. 1, p. 69, 1901 (reference). —
Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12,
— Jordan and Seale, Bull. Bur. Fisher.,
vol. 26, p. 15, 1906 (1907).
(p. 517, June 10, 1904 (Padang, Sumatra)).

— Jordan and Richardson, Mem. Carnegie
Mus., vol. 4, no. 4, p. 180, Aug. 28, 1909
(Takao, Formosa). — Jordan and
Thompson, Mem. Carnegie Mus., vol. 6, no.
4, p. 241, Sep. 1914 (Sagami Bay).

— McCulloch, Mem. Queensland Mus.,
vol. 7, pt. 4, p. 241, Dec. 19, 1922 (between
Cairns and Rockhampton).
pl. 14, fig. 2,

— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, vol. 79, 1927, p. 272
(Santa Maria; Vigan); Journ.
Bombay Soc. Nat. Hist., vol. 33, no.
1, p. 111, September 30, 1928
(Bombay). — McCulloch, Austral. Mus.
Mem., no. 5, pt. 2, p. 194, Sep. 10, 1929
(reference).

1003

Bayer. Abad. Wiss., vol. 4, suppl.
band 1, 1910, p. 48 (Yokohama; Aburatzubu).
 $\frac{1}{m}$ Seale, Philippine Journ. Sci., vol. 9,
no. 1, 1914, p. 68 (Hong Kong). $\frac{1}{m}$ Barnard,
Ann. South African Mus., vol. 21, pt. 2,
1927, p. 584 (Delagoa Bay).

Upeneus japonicus (not Houttun)
Steindachner and Döderlein, Denkschr.
Abad. Wiss. Wien, math.-naturwiss.
Classe, vol. 48, 1884, p. 22 (Aomori). $\frac{1}{m}$
Jordan and Snyder, Proc. U. S. Nat.
Mus., vol. 23, 1900, p. 358 (Japan); Annot.
Zool. Japon., vol. 3, 1901, p. 83 (part). $\frac{1}{m}$
Steindachner, Ann. Hist. Mus. Wien,
vol. 11, 1896, p. 202 (Kobe, Hiogo, Nagasaki).
Upeneoides tokisensis (Döderlein)
Steindachner and Döderlein, Denks. Abad.
Wiss. Wien, math.-naturwiss. Classe, vol. 48,
1884, p. 22. Tokyo. (name in synonymy.)
Upeneus tokisensis Jordan and Snyder, Annot.
Zool. Japon., vol. 3, 1901, p. 84 (Yokohama).

— Weber and Beaufort, Fishes Indo-
Austral. Archip., vol. 6, p. 308, fig.
66, 1931 (Bleeker's specimen).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia,
vol. 87, p. 144, 1935 (Bangkok).

emarginate to forked. But few natural groups seem to eventuate which may be indicated as valid subgenera.

As several species have been doubtfully reported from the Philippines we give them with references as follows:

Amia chrysotaenia (Bleeker)
Apogon chrysotaenia Bleeker, Nat. Tijds.
Ind. Indie, vol. 2, 1851, p. 168. Batavia,
Java. — Günther, Cat. Fishes Brit. Mus.,
vol. 1, 1859, p. 242 (copied). — Steindachner,
Abhandl. Senckenberg. Naturf. Gesell.,
vol. 25, 1900, p. 416 (Terminator).

Amia chrysotaenia

Luene anna - ~~maculata~~ Lacépède,
Hist. Nat. Poiss., vol. 5, pp. 479, 480,
pl. 14, fig. 2, 1803 (type locality,
China; on "peintures chinoises").
— Bleeker, Verh. Kon. Akad.
Wet. Amsterdam, vol. 18 (Enum.
Pois. Japon), p. 16, 1879 (Nagasaki,
Kiusiu).

Rhabdania Weber, Notus Leyden Mus.,
vol. 31, 1909, p. 165. Type Rhabdania
clupeiformis Weber, designated by
Jordan, Genera of Fishes, pt. 4, 1920,
p. 534, as orthotypic.

Heptamia Jordan, Copeia, no. 44, May 24,
1917, p. 46. Type Upogon fuscus Quoy
and Gaimard, orthotypic.

Zorania Jordan, Copeia, no. 44, May 24,
1917, p. 46. Type Upogon gracilis Günther,
orthotypic.

Brephania (Jordan) Jordan and Jordan,
Mem. Carnegie Mus., vol. 10, no. 1, 1922, p.
43. Type Upogon parvula Smith and
Radcliffe, orthotypic.

Depth $1\frac{1}{5}$ to $1\frac{1}{2}$; head $2\frac{4}{5}$ to $3\frac{1}{4}$, width $2\frac{2}{5}$ to 3. Snout $2\frac{1}{4}$ to $2\frac{4}{5}$ in head from snout tip, tip level with upper part of eyes; eye $3\frac{1}{4}$ to $4\frac{2}{5}$, $1\frac{1}{4}$ to $1\frac{3}{4}$ in snout, 1 to $1\frac{1}{4}$ in interorbital; maxillary reaches front eye edge, length $2\frac{1}{5}$ to $2\frac{1}{2}$ in head from snout tip; interorbital $3\frac{1}{4}$ to 4, greatly elevated to median keel. Gill rakers 8 + 24, lanceolate, $1\frac{1}{3}$ in gill filaments, which $1\frac{1}{4}$ in eye.

Skin smooth. Lateral line evenly arched, extends below last dorsal rays.

D. III, 40, I or III, 41, I, first branched ray $2\frac{1}{5}$ to $2\frac{3}{5}$ in total head length; A. 30 to 32, low, short, broad, greatly branched

rays form low narrow abdominal edge; caudal 1 to $1\frac{1}{4}$, widely forked; least depth of caudal peduncle $5\frac{1}{2}$ to $6\frac{1}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$, rays II, 12; ventral $1\frac{7}{8}$ to 3 in body without caudal, with long, flat, flexible band like first ray, sometimes only one ray of fin prolonged.

Back and head above brown, below silvery white. Above median axis on side of back 2 or 3 rows of slate or neutral blue oval blotches, variably vertical, none greater than eye. Fins pale. Dorsal gray, front lobe dusky. Caudal and long ventral ray dusky gray. Anal and pectoral pale.

Arabia, Zanzibar, Madagascar,
India, Ceylon, Malaya, East
Indies, Philippines,
China, Formosa, Japan,
Queensland.

Amia nigripinnis Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p.
99 (copied).

Dipogon punctatus Regan, Trans.
Linn. Soc. London, vol. 12, ser. 2, 1907,
p. 225, pl. 24, fig. 1. Cargador Parajor,
Indian Ocean, in 20 to 30 fathoms.

Known from Elera's Philippine record.

A 1008. No locality. Length ²¹⁵⁷
140 mm.

5366, 5367. Oton market,
Iloilo. March 30, 1908. Length
108 to 120 mm.

M. 5702. Manila market. May 4,
1908. Length 170 mm.

U. S. N. M., No. 75938. Japan?
P. L. Jouy. Length 49 to 60 mm.
Two examples.

A.H.S.P., one example. Santa
Maria. 1923. Rev. Joseph Clemens.
Purchased.

A.H.S.P., two examples. Vigan.
1923. Rev. Joseph Clemens. Purchased.

49485 U.S.N.M. Yokohama, Japan.
Albatross Collection. September 1896.
 Length 105 to 107 mm. 2 examples.

56122 U.S.N.M.

Bureau of Fisheries (No. 3901). Length 109 mm.

56368 U.S.N.M. Nagasaki, Bureau
 of Fisheries. Length 73 to 174 mm. 5 examples.

56433 U.S.N.M. Tokyo. P. L. Jouy.

Collection K. Otakei. Length 50 to 149 mm.
 8 examples. In very young pale or
 whitish caudal with 3 blackish oblique
 bands inclined from upper edge of
 upper lobe back and lower lobe
 with broad blackish band from
 caudal base over whole length of lobe.